DOCUMENT RESUME

ED 073 063 SP 006 053

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TITLE Learning Activity Packages.
INSTITUTION Indiana State Univ., Terre Haute. Curriculum Research and Development Center.
PUB DATE Jan 72
NOTE 94p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Curriculum Development; Educational Innovation; *Individualized Instruction; *Instructional Materials; *Instructional Programs; *Learning Activities

ABSTRACT

This document describes a learning activity package (LAP) as an approach to individualized instruction. Prepared by teachers, the learning activity package allows the student to progress toward stated objectives at his own pace, selecting from among learning activities those suitable to his own learning style. Included in this report are a bibliography of materials; reports by a state administrator, a principle, and a librarian; and sample LAPs prepared by teachers of Jefferson High School, Jeffersonville, Indiana. (Author/MJM)

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David Turney
Dean, School of Education

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Director

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LEARNING ACTIVITY PACKAGES

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D O E S

And

CURRICULUM RESEARCH
AND DEVELOPMENT CENTER

SCHOOL OF EDUCATION, INDIANA STATE UNIVERSITY ● TERRE HAUTE

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January 1972

FOREWORD

Meaningful continuing improvement of teaching whereby teachers forge ahead in the field of education through active participation is crucial. It is crucial for teachers, for the pupils of their classrooms, and ultimately for the educational upgrading of the entire citizenry. No longer can improvement of instruction as a haphazard endeavor be tolerated. On the contrary, it is a matter of professional necessity.

The material contained in this bulletin is exemplary of what can be accomplished by teachers to improve the planned individual learning opportunities for boys and girls. The ideas presented are illustrative rather than comprehensive. They were selected to illustrate ways and means of developing learning activity packages. The participating teachers, administrators, consultants, and project coordinators are to be commended not only for their efforts directed toward improving the teaching-learning process at Jeffersonville Senior High School, but also for pioneering efforts that should be helpful in any educational organization concerned with improving learning opportunities for students.

Fred Snyder
Associate Professor
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PREFACE

The learning activity package (LAP) as an approach to individualized study was developed in the Nova Schools at Fort Lauderdale, Florida, as an adaptation of the UNIPAC developed under the auspices of the Kettering Institute. Prepared by teachers, the learning activity package allows a student to progress toward stated objectives at his own pace, selecting from among learning activities those suitable to his own learning style.

An inservice workshop, administered by the Division of Extended Services of Indiana State University, offered the faculty of the Jeffersonville High School in Jeffersonville, Indiana, the option of learning about and preparing learning activity packages. Dr. Benjamin Walker of the Indiana State University School of Education was the coordinator of the workshop. Several consultants from Indiana State University, some from other public schools, and one from the Indiana Department of Public Instruction also worked with the teachers.

The Extended Services Library is an integral part of the Division of Extended Services and supports the off-campus course offerings with supplementary and reference books and periodicals and with reference service. A request by Dr. Walker for materials about learning activity packages and related areas required a substantial amount of searching through educational literature to gather enough material to aid the Jeffersonville faculty in their projects.

Included here are a bibliography of materials, reports by a state administrator, a principal, and a librarian, and sample LAPs prepared by Jeffersonville High School teachers. It is hoped that this publication will be helpful to those who are seeking information in this area.

Margery M. Buchholz
Extended Services Librarian
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TABLE OF CONTENTS

I. BACKGROUND

Introduction
by Benjamin F. Walker 3

A Learning Package
by Larry Newton 5

A Librarian Looks at LAPs
by Margery M. Buchholz 9

Preparing for Change - One Process
by Terry Cummins 11

II. LEARNING ACTIVITY PACKAGES

Sound We Hear and The Sound We Don't Hear
by Margaret J. Miller 19

The World of The Middle Ages
by Inez W. Jones 36

Filing Fun-Damentals
by James Sylvester and Larry Cunningham 45

Tag Along With Textiles
by Virginia A. Tipton 55

BIBLIOGRAPHY 89

Part I

BACKGROUND

INTRODUCTION

In anticipation of entering a new senior high school building, with a newly-organized modular schedule, Jeffersonville High School officials requested in January, 1971, the services of the School of Education, Indiana State University. The expected date of entering the new facility was September, 1971.

University officials, under the leadership of Dr. David Turney, Dean, School of Education, and Jeffersonville High School officials, headed by Mr. Terry Cummins, principal, held preliminary discussions for the purpose of determining the specific kind of professional services the university could make available in assisting the school. These discussions led to the decision that the University could best serve the interests of the school by assisting school faculty in the development of learning activity packages, which would really serve as the "core" of the independent study program for students.

The professional services were administered through the University's Division of Extended Services. A University coordinator was appointed and in February, 1971, seventy-two members of the Jeffersonville High School faculty enrolled in the Teachers' Workshop, which had as its primary objective the development of learning activity packages.

The Division of Extended Services Librarian played a key role in the total effort. Books, pamphlets, periodicals, films, filmstrips, tapes, and other resource materials concerning learning activity packages were procured and made available in numerous quantities to the school faculty.

At the outset of the Teachers' Workshop four meetings of the participants involved background and other necessary information and discussion to give direction to the project. After these four meetings, the participants worked as individuals and teacher teams in the development of packages. This individual teacher work gave the faculty some insight into the challenges of independent study which their students would encounter in the new program.

Upon request, the coordinator provided consultants to work with the various faculty teams as the teams or individual teachers reached plateaus or obstacles.

The consultants to the Teachers' Workshop and the areas in which they served included Mr. Larry Newton, Language Arts Consultant, Indiana Department of Public Instruction, and the following members of the Indiana State University faculty:

Dr. James Rentschler, Administration
Dr. Ruth Turner, Home Economics
Dr. Wynnie Ford, Business Education
Dr. Elmer Ciancone, Industrial Arts Education
Dr. John Carter, Mathematics
Dr. Robert Pabst, Team Teaching
Dr. Bill Conley, Administration
Mr. Jack Grantham, Social Studies
Mr. John Vankerk, Foreign Language

The school principal invited several teachers from other schools with independent study programs to visit with his teachers and made funds available to the Jeffersonville High School teachers to visit other schools.

The Teachers' Workshop resulted in the development of a better understanding by the faculty of the development of learning activity packages as well as the actual production of many packages which are being used presently by faculty members. The evaluation of the project by the faculty indicated it was useful, especially in helping them to actually experience the challenge of independent study.

Benjamin F. Walker
Professor
Department of Education
Indiana State University

A LEARNING PACKAGE

Learning activity packages have as many definitions and labels as there are people using them. Such definitions and labels usually reflect the use of the package within a specific educational setting. The following general definition reflects the overall purpose and responsibility of the Learning Activity Package as I see it:

> A learning activity package is a written educational tool designed to tell the individual user (1) Where he is going (performance objectives), (2) How he can get there (methods for accomplishing the objectives), and (3) When he has arrived (accomplishment of the objectives).

Two important facts must be understood if one is to successfully develop learning packages. First, there is no such thing as the "correct" style or use for a learning package. Learning packages come in a wide assortment of shapes, colors, and designs. Teachers should become familiar with a variety of types and be able to design a package that will best meet the needs of their students in a given situation.

Secondly, one must remain flexible when using or developing learning packages. Imagination, available resources, specific needs, and professional judgment must all be developed when working on the construction of a learning package.

Learning packages should be used "as needed," and the classroom teacher should logically be the one who determines their design, application, and effectiveness. However, most classroom teachers are still unfamiliar with the package as an effective teaching tool.

The purpose of the following information is to help the classroom teacher become more familiar with the elements of a learning package. These items may be used as necessary within your package with one exception. The items marked with an asterisk are vital elements for any learning package and should not be eliminated.

Remember: This is not the only type of learning package--it is one type.

A. Title - Your package title should serve two purposes: to attract attention and to inform. Students appreciate a title that creates interest. Although a good title can be an asset, don't get bogged down with developing a snappy title and neglect the rest of the package.

*B. Purpose - Your purpose should be written in a clear, understandable language. Your students must understand what it is. Forget your educational jargon; use a language that communicates to the user of the package, not your supervisor.

If you cannot justify your package and state clearly what you propose to accomplish--forget it.

C. General Objectives - If you must include items to please your supervisor, do it here, but warn your students that this information does not apply to them. Most "educational objectives" are so ambiguous that they are meaningless to everyone except those "educators" to whom such jargon serves as a life-blood.

***D. Behavioral Objectives (Performance Criteria) - This is the backbone of your package. More thought should be applied to developing this aspect of your package than perhaps any other area. If you cannot write sound behavioral objectives for your package, your package will probably end up looking very much like a compilation of ambiguities.

Objectives such as "to appreciate," "to understand," "to love," etc., have no place under the label of behavioral objective.

Your behavioral objectives must be clearly understood by the user of the package or your entire effort will be wasted. Again, the emphasis must be upon communication--not impressiveness.

*E. Activities - Here is where you, the professional, help the student prepare to accomplish his objectives.

Here is where you can actually individualize your instruction. Students learn through a variety of senses; learn to utilize these avenues of learning. Students may read, write, view, touch, visit, listen, taste, smell, etc., to prepare for the accomplishing of a behavorial objective.

Use your professional imagination to prepare many ways for your students to learn. Truly make your approach to learning multi-directional rather than linear; provide for student choice as often as possible.

F. Extended Activities - Always consider those students who want to delve deeper into an area of interest.

One word of caution-do not let these extended or extra activities become a "punishment" for the student who completes his package earlier than you expected. Continuous assignment of extra work for fast students can rapidly establish a negative effect.

G. Supplemental Materials - Your librarian and/or audiovisual director can be of great assistance here. Let your students know what materials are available for their use, assist them in getting the necessary materials and equipment, and be sure the red-tape is held to a minimum.

Ideally the materials and equipment should be in the immediate vicinity of the student's work area, not hidden away in a file cabinet or storage closet.

*H. Evaluation Sheet - This can be a valuable aid for the teacher who is sincerely interested in making learning packages work. Learn to utilize the constructive opinions and suggestions of your students.

The evaluation sheet should be brief and uncomplicated. Be prepared for some negative feedback at first, but remember, learning packages are as new to your students as they were to you originally.

I. Pre-test and/or Post-test - Use of a pre-test will be determined by each situation. The classroom teacher should feel free to use a pre-test if the need for one is evident.

Post-testing is not a problem when using learning packages. Once your behavorial objectives have been established, so has your post-testing.

Do not use behavorial objectives and then "surprise" your students with additional quizzes, tests, and similar "motivational" devices. The success of your learning package could very well depend upon the development of an honest relationship between you and your students. This relationship must be based upon mutual trust and a desire to achieve mutually agreed upon goals not fear, anxiety, and suspicion.

In conclusion you should reflect upon these things:

1. A learning package is not a magic formula to successful individualized instruction. It is one method that is applicable to some specific educational needs.

2. There is no such thing as the "right," "best," or "correct" learning package. Packaged learning material should be tailored to meet the needs of a specific educational situation.

3. The unifying element of the learning package should be the construction and understanding of the behavorial objectives (performance criteria).

   If your foundation is vague, faulty, and non-directional, your results will be the same.

4. The elements within a learning package will vary with the application of the package. Teachers should feel free to ask for assistance and explanation.

When you reach the point where both you and your students can work together toward a desirable, mutually agreeable educational program, all of you will find your efforts more productive, more satisfying, and more professional.

Larry Newton
Language Arts Consultant
Indiana State Department of Public Instruction

A LIBRARIAN LOOKS AT LAPS*

The teacher-made learning activity package or LAP, as it is popularly called, is relatively new and is still in the developmental stage. While there are some commercially prepared LAPs, the most effective are those developed and structured by the teacher to meet the distinctive requirements of his own students and his own school. Teachers who are in the process of writing LAPs are struggling with the concepts of rationale, behavioral objectives, criterion-referenced evaluation, quest, pretest, posttest, and self-evaluation. They have to consider the scope and sequence of the course and the relationship of the individualized study unit within those bounds. They have to plan for the use of multi-media and for multi-model activities so that each individual student can achieve according to his own capabilities. The overburdened teacher needs help! There is one valuable staff member who can assist the teacher in many ways in both the preparation and the implementation of the learning activity package. The school librarian has special skills, knowledge, and techniques that make her an important member of the teaching team.

It takes a great amount of time and effort on the part of the teacher at the outset to design a LAP to meet the individual needs and individual learning styles of his students. Preparation requires not only writing the LAP in behavioral terms, but also selecting the media to be used by the students in completing the stated objectives. Faced with the overwhelming abundance of both print and non-print material available today, the teacher may be inclined to limit his choices to those materials with which he is already familiar, even though they may be outdated or unavailable. The librarian should be included in the planning and developing process. She can let the teacher know if materials he wants to use are available in the library or if they will have to be ordered. She can suggest additional materials in all subject fields because she has special skills in using standard and current bibliographic tools. Past experience will help her determine if multiple copies of materials will be needed. If she is made aware of the materials necessary to complete the activities in a LAP, she can order them during the planning stage so they will be ready for the students to use when needed. A working knowledge of the content of the many LAPs being constructed will help the librarian to determine where there are gaps in the collection.

The librarian organizes materials for the most effective utilization by the students and faculty. The materials needed for the activities prescribed in learning activity packages come in a variety of forms, including, but not limited to, books, films, filmstrips, video tapes, taped recordings, discs, periodicals, documents, transparencies, and microforms. Along with all this "software" is the accompanying "hardware" such as projectors and playbacks. Decisions must be made concerning the storage of materials and equipment. Should they be stored

*Learning Activity Packages

with the packages or separately? Should all types of media be together in subject arrangement or should each form, i.e., books, films, filmstrips, and tapes, be shelved separately? Should all materials be stored in the instructional materials center or in the resource centers? There are no "right" answers to these questions. The decisions have to be made in the light of the particular circumstances in each school. The school librarian can make these decisions objectively on the basis of her past experience and her knowledge of librarianship. All supplementary learning materials, including those in departmental resource centers, should be under the control of the librarian. A master file, located in the library, listing all materials in the school would make all materials available to everyone. It would eliminate costly duplication of less used materials and at the same time would indicate the necessity of having additional copies of heavily used media.

The school librarian creates an atmosphere for learning in the instructional materials center. The student who is working on a LAP will find the media center a pleasant place to work. The old gloomy, dull library, used as an overflow study hall, is gone and in its place is a bright, active, sometimes noisy learning center. Many of the activities required to meet the objectives of the LAPs can be carried out in the instructional materials center. A hoped-for result of completing a LAP is that it will arouse enough curiosity in the student that he will want to search further into the subject. The student in his quest will need to use the resources of the instructional materials center.

The instructional materials center is an integral part of the individualized learning program and the librarian is the one who makes it a learning center. The librarian is first of all a teacher with a specialized subject background. She knows about the curriculum in the school and understands the importance of the educational goals. In the implementation of the LAP and the quest, the librarian assists the student by guiding him in using library skills. The librarian is not a stranger to individualized instruction because the most meaningful instruction in library skills has always been the one-to-one instruction given by the librarian when a student is searching for information for a report or a term paper or a project. The student who has been encouraged to use the facilities of the instructional materials center has not only met his immediate goal of completing LAP activities, but also he is forming searching habits which will aid him in his lifelong quest for knowledge.

Margery M. Buchholz
Extended Services Librarian
Indiana State University

PREPARING FOR CHANGE - ONE PROCESS

Directing Independent Study Through the Use of Learning Materials

In the fall of 1971, Jeffersonville High School will begin its second century of existence with a totally new building complex and a totally new scheduling system. The building is an outstanding facility with the latest in instructional arrangements. The new scheduling system is a computerized modular schedule which features team teaching, large group, small group and laboratory group instruction, and independent study.

The faculty of Jeffersonville has been preparing for these changes. An extensive program of preparation has been in progress for over a year. Since students under the modular schedule will have 30 to 40 percent of their time unscheduled, it is imperative that proper direction be given to students if this unscheduled time is to be used advantageously. Although there are other important phases of instruction within a modular schedule system, independent study is certainly a critical area which requires special emphasis. Consequently, in addition to preparing the staff in technique and methods of team teaching, large and small group instruction, and other areas of modular scheduling, a major effort is being exerted in the area of directing independent study.

Role of Indiana State University

Officials from Indiana State University met with the administrative staff of Jeffersonville High School and discussed ways of helping to prepare the staff for the change. It was decided that priority should be given to the area of directing independent study. As a result of the conferences, it was decided that a course of experimental nature would be offered to the staff and the course would be arranged on an independent study basis. Meetings of the total group would be held only when needed. Most of the work would be done in departmental meetings, team meetings, and individual or independent study.

Dr. Benjamin Walker, Professor of Education, Indiana State University, was named the coordinator for the project. Sixty-four members of the Jeffersonville High School staff voluntarily enrolled in the class. Although the course was never given an official name, the unofficial title was "Directing Independent Study Through the Use of Learning Materials."

As the staff began discussing and exploring the independent study aspect of modular scheduling, it became apparent that considerable planning and directing were necessary. The task introduced to the staff can be explained in the following terms.

> Under a traditional schedule, teachers met with students for approximately 300 minutes per week in all classes. Next year, teachers will meet students in large groups, samll groups and laboratory groups for approximately 225 minutes per week, although this will vary. How are you the teacher going to direct student independent study to compensate for less time being spent in formal classes? Are you going to assign the reading of a certain number of pages from a textbook? Or are you going to formulate a variety of learning activities which will cause the student to want to accept some responsibility for his own learning?

Essentially, the course of action taken by the staff was to investigate what had been done in the field of independent study, to consider what could be done in each staff member's particular situation, and to formulate or write learning activity packages, which would be used in the modular system.

The Learning Activity Package

Learning packages have been given several names--unipacs, study packets, LAPs learning packages, etc. The staff adopted the term LAPs In orientation presentations to parent and student groups, the term LAPs was explained. Undoubtedly, this term will become a familiar one at Jeffersonville High School next year.

The format or structure of a LAP has various components. Authorities who have written in the field do not totally agree on an exact structure. Basically, a learning package contains the following:

1. Title of unit or package
2. Rationale or purpose
3. Learning objectives in performance terms
4. Pre-test
5. List of specific and related reference materials
6. Program of instructional activities and strategies. This includes listening, viewing, reading, constructing, discussing, writing, etc.
7. Post evaluation
8. Quest activities

Essentially, a learning activity package is merely a tool that permits the student to receive direction as he becomes responsible for his own learning.

The Process of Learning About LAPs

As the staff began to explore the field of learning activity packages, several means of introducing this new area were employed. Dr. Walker and Indiana State provided a supplementary professional library

which contained the known literature in the areas of learning packages, behavioral or performance objectives, modular scheduling, independent study, team teaching and related fields. In addition, the high school had accumulated an excellent professional library of materials related to the many facets of modular scheduling. The staff used these materials extensively.

Indiana State also provided films and filmstrips. A filmstrip on writing behavioral objectives proved to be very valuable in assisting the staff to better understand how to write the objectives. Performance or behavioral objectives are of prime importance in the structure of a learning package. Consequently, it was necessary that the staff have an understanding of the function of objectives.

Wide and profitable use of various consultants was utilized. Seven university curriculum specialists met with small groups of staff members and had conferences with individual teachers. Nine teachers who had had experience in teaching in a modular system and in using learning packages, consulted with the departments, answered questions, and passed on valuable first-hand information.

The English department chairman of Jeffersonville attended a national workshop on preparing learning activity packages. The information he presented to the total staff was of considerable value.

Two full days of in-service activities permitted four general consultants to give information and direction to the process of directing independent study. One of these consultants was a State Department of Public Instruction official, one was an instructional-media specialist in a large high school, one was a college professor and one was a high school administrator.

Numerous sample learning packages were secured and distributed to the staff. Many schools and institutions were very generous in sharing ideas and in giving sample learning packages. These many samples were profitably used as guides as the staff began writing their own LAPs.

One outstanding feature of the new Jeffersonville High School is the departmental resource centers. The department chairmen and teachers spent considerable time in selecting aids and materials for these new resource centers. As the teachers prepared to organize and write the LAPs, a knowledge of the available resources, aids, and materials was most helpful. A key ingredient in the program of instructional activities segment of a learning package is the use of diversified resource materials. Teachers had a first-hand knowledge of available resource materials as they concurrently began organizing the learning packets.

Another unique feature of the new school is a dial-access retrieval system. An introductory session was held with the staff to explain the instructional function of the access system. The features of this system will be most beneficial to the listening phase of independent study.

As was stated earlier, team teaching will be an important part of the new program. As the staff began to organize and prepare learning materials, many of the planning sessions were conducted by teams. Team assignments had been determined earlier. In addition to team planning sessions, departmental meetings were also held. Naturally, a great deal of independent and individual work was done as specific responsibilities were mutually assumed by team members.

Finally, another source of assistance proved to be quite valuable as the staff proceeded through the process of learning about LAPs. Allan Glatthorn and Gardner Swenson's "How to Prepare a Unipac," John Arena's "The Learning Activity Package," Kenneth Smith's "A LAP on Writing LAPs," and Swenson's "A Unipac on How to Make a Unipac" were thoroughly examined, and the ideas contained therein were utilized by the staff.

Writing the Learning Package

After reading the available literature, meeting with the consultants and experiencing the other activities of learning about LAPs, the staff began the process of writing learning packages.

In writing the packages, originality was stressed. Teachers were encouraged to be creative--to do their own thing. The guidelines and the structures set forth by Swenson, Glatthorn and others were to be used merely as guides. The prime factor to be considered in the writing was the needs and interests of the student. The question was continuously proposed, how are you going to direct independent study? How are you the teacher going to organize, assimilate, and write a meaningful set of learning activities which will be appropriate to the student's needs and will turn him on to learning?

Since course #551 was organized on an experimental, independent study type basis, there were no specific requirements. The assignment was open-ended. The teachers enrolled in the course were not required to submit a finished and polished learning activity package. The assignment was to study, to think, to meet with team members, to discuss, and to search for ways for students to become more responsible for their own learning.

At several points, frustrations were evident. The staff members oftentimes sought guidance and direction. There was considerable soul-searching in envisioning how students could be directed to respond favorably to independent study. There was frequent moments of perplexity in understanding the whole realm of flexible modular scheduling. Despite the uncertainty, there was enthusiasm and a willingness to change. A great deal was accomplished. Perhaps some of the completed or partially completed LAPs will not accomplish the purpose for which they are intended.

Nonetheless, the informal learning experiences will undoubtedly prove to have been most beneficial as the staff of Jeffersonville High School implements the change in the fall of 1971.

Terry Cummins
Principal
Jeffersonville High School
Jeffersonville, Indiana

Part II

LEARNING ACTIVITY PACKAGES

The Learning Activity Packages in this section were developed by teachers in the Greater Clark County School Corporation. These packages are not printed as necessarily "ideal" or "perfect" but, rather, they are presented as examples of what some teachers believe will be practical and worthwhile for students in independent study.

SOUND WE HEAR AND THE SOUND WE DON'T HEAR

NAME:_____

SECTION:_____

A Science or Music Learning Package

prepared by:

Margaret J. Miller
Greater Clark County
School Corporation

RATIONALE:

A basic knowledge of why we hear and what sound actually consists of, leads to a better understanding of the ever-broadening field of sound as a medium in the modern scientific world.

GENERAL LEARNING OBJECTIVES:

1. The basics of sound patterns.
2. How we, as humans, interpret sound.
3. Field of ultra and infrasonics in a modern world.

STUDENT OBJECTIVES:

1. You will be able to identify the parts of a sound wave and to explain what is meant by a soundwave, how soundwaves are measured and what happens to a soundwave.
2. You will be able to tell how sound travels and through what mediums it travels the fastest.
3. The characteristics of sound such as amplitude, pitch and quality will be thoroughly understood and explained in terms of energy, frequency and the determiners of quality.
4. A knowledge of music through a study of the octaves, scales, the ratio of vibrations that gives us harmony or discord as it pertains to vibrations of sound waves.
5. The opportunity to extend your knowledge in the study of the human ear--to see how sound is interpreted along with the parts and functions of the ear.
6. To know the terminology that accompanies the study of the science of sound.
7. To have a basic knowledge of ultra and infrasonics with reference to new methods that are now being applied in these comparatively new fields.

IF YOU FEEL YOU CAN MEET THE ABOVE OBJECTIVES AT THIS TIME, YOU MAY TAKE THE SELF-TEST AT THIS TIME. CONFER WITH YOUR INSTRUCTOR FIRST.

If not, turn to the next page and read the remainder of this package.

SELF-TEST

To see how much you know about the ideas and concepts of sound, take the following self-test to determine whether or not you should pursue this study further.

A. From each numbered item, select and underline the two of the last four terms which are most closely related to the already underlined word:

1. Sound: potential energy, kinetic energy, vibrations, electrical energy

2. Sound waves: compression, completion, ramification, rarefaction

3. Sound receivers: waves, overtones, ears, eardrums

4. Loudness: amplitude, pitch, quality, damping

5. Speed of sound: 186,000 miles per second, 1,100 miles per second, ½ mile per second, 1,100 feet per second, 1/5 mile per second

6. Pitch: frequency, quality, amplitude, 256 vibrations per second

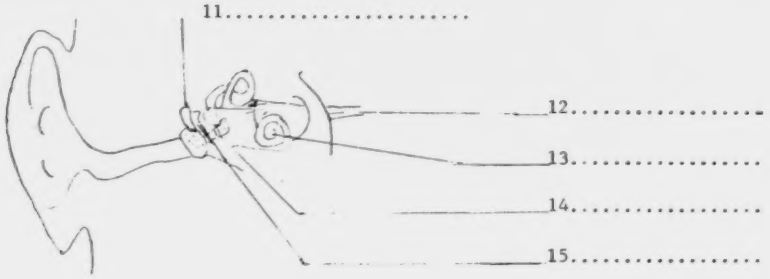
7. Octave: 128 v.p.s. and 512 v.p.s.; 256 v.p.s. and 312 v.p.s.; 512 v.p.s. and 1,024 v.p.s.; eight notes apart

8. Quality: pitch, overtones, amplitude, shape of instrument

9. Ultrasonic: more than 20,000 v.p.s., less than 20,000 v.p.s., high pitch, low pitch

10. Echoes: overtones, octaves, 1,100 feet per second, wave reflection

B. Name in the numbered spaces the parts of the ear indicated in the drawing below.



C. Complete the sentences below by writing in each blank the word which will make the statement correct.

16. Sound is produced by an object which is_____.

17. Sound waves travel out in all_____.

18. If a sound wave is damped enough, we may not_____it.

19. The captain of a ship hears the echo of the fog horn two seconds after the blast is sounded. The ship is about_____ feet, or _____ miles, from the reflecting surface.

20. Sound is a form of_____ energy.

21. The intensity of sound is usually measured in _____.

22. Sound comes to you more quickly through which form of matter? _____.

23. A sound wave which gradually fades away is said to be_____.

24. A device known as an audiometer is used to _____ _____.

25. The amount of energy in a sound wave determines how_____ the sound is.

CHECK ANSWERS WITH YOUR INSTRUCTOR AND DETERMINE HERE IF YOU SHOULD PROCEED WITH THE REST OF THE PACKAGE.

OBJECTIVE #1

Be able to identify the parts of a soundwave and explain what a wavelength is, how soundwaves are measured and what happens to a soundwave.

Select from the following assignments those which help you to master objective # 1.

ASSIGNMENTS:

1. Read Modern Science, Blanc, Fischler & Gardner, pages 148-153.

2. Read The World of Matter--Energy, Brandwein, Beck, Strahler, Hollingworth & Brennan, pages 354-357.

AUDIO-VISUAL MEDIA:

1. Play taped recording of lecture covering information for this objective.

2. Experiment with rubber bands stretched across a cigar box or filling test tubes with different levels of water and blowing across them. Blow across an empty bottle top or across a folded piece of paper, and observe what causes soundwaves.

3. Prepare a drawing to indicate what a soundwave consists of. Label parts. Below drawing, write a statement explaining same in terms of air molecules. Also indicate what one wavelength is equivalent to.

4. Obtain the record, "Sound Patterns", number 5012, from the school library and listen to same.

AUDIO-VISUAL MODE:

1. Organize an "orchestra" using instruments made from bottles, metal pipes, strings, can, etc., and give a demonstration for the class.

2. Construct a tin-can telephone. Talk to a friend and explain what you observe. (Instructions: The World of Matter--Energy, Harcourt, Brace and World, page 353.)

3. In groups of five, with one person standing in each corner of a room and the 5th person in the center, let each person speak in a normal tone. You, in the middle, explain what happens to a sound wave. Use scientific terminology.

OBJECTIVE # 2

How does sound travel and through what mediums does it travel the fastest?

Select from the following assignments those which will help you to master objective # 2.

ASSIGNMENTS:

1. Read pages 149-152 in your textbook, Modern Science.
2. Memorize the speed of sound through gases, liquids and an average solid at 0° C. (page 151 in your text)

AUDIO-VISUAL MEDIA:

1. Perform the experiment to see if sound carries in a vacuum. Experiment described on page 149, Modern Science, Blanc, Fischler & Gardner.
2. Using the tuning fork, strike with a rubber mallet and observe the waves as you insert in a container of water. Sprinkle pepper on the water so that you may make better observations of what occurs.
3. Set up 3 cans, filling one with sand and another with water, leaving the 3rd can empty; stretch a diaphragm (use some saran-wrap) tightly over the mouth of each; place some sand on the diaphragm and tap the bottom of the cans. From this observation, determine whether sound travels best through gases, liquids, or solids.
4. Experiment with the tuning fork by striking with a rubber mallet and holding it against different objects. Press gently against your own cheek to "feel" sound vibrations.
5. Demonstrate a wave pattern by tapeing the end of a hacksaw blade to a block of wood so that the blade is parallel to a table top and about an inch above it. Tape a broom straw to the end of the blade and rest a smoke glass plate on edge so that the straw rests lightly against the blackened surface. Set the blade vibrating and pull the plate steadily toward you. A wave pattern will be produced in the soot.

OBJECTIVE # 3

The characteristics of sound such as amplitude, pitch and quality are to be thoroughly understood and explained in terms of energy, frequency and the determiners of quality.

Select from the following assignments those which will help you to master this objective.

ASSIGNMENTS:

1. Read pp. 359 & 360 in The World of Matter--Energy by Brandwein, Beck, Strahler, Hollingworth & Brennan.

2. Read pp. 154-158 in Modern Science by Blanc, Fischler & Garner.

3. Read Chapter 4, "The Mind's Influence", p. 77, Sound and Hearing, Life Science Library.

AUDIO-VISUAL MEDIA:

1. Obtain a set of tuning forks.
   a. To illustrate differences in loudness, strike a tuning fork lightly and then increase the sharpness of the blows gradually.

   b. To demonstrate pitch, strike 3 tuning forks which are made to vibrate at 128, 256 and 512 v.p.s. respectively, their frequency, with approximately equal force. Note the higher pitch. Those that vibrate faster are higher in pitch.

   c. Strike a tuning fork and listen to it as it is held in the hand and again when one end is held against a chalkboard. Note quality of sound.

2. Using a stringed instrument, loosen and tighten the strings as you run the bow across. What happens to the pitch?

AUDIO-VISUAL MODE:

1. Assemble a group of musicians--you may wish to visit the band or orchestra room--and ask them to all play the same note. How do you account for the fact that all have a different "quality" of sound?

OBJECTIVE # 4

A general knowledge of music through a study of the octaves, scales, the ratio of vibrations that gives us harmony or discord as it pertains to the vibrations of sound waves, will be attained.

Select from the following assignments those which will help you to master this objective.

ASSIGNMENTS:

1. Read pp. 165-169, Modern Science.
2. Draw a picture showing an octave and indicating the vibrations per second of each note therein.
3. Learn the notes of the scale. All scales, the musical notes produced by an instrument, have 8 notes which make up an octave. Each note has a different number of vibrations.

AUDIO-VISUAL MEDIA:

1. Using the keyboard of the piano or electric organ, and referring to your text pp. 165-167, study the information regarding octaves, scales, the ratio of vibrations between notes, harmony, overtones and discords.

OBJECTIVE # 5

The human ear is a masterpiece of engineering. We should know its mechanisms and how it interprets sound for us.

Do the following to accomplish objective # 5.

ASSIGNMENT:

1. Trace a sound wave through the human ear and tell how it is interpreted as sound we hear.
2. Read Sound and Hearing, Life Science Library, pages 38-44.

AUDIO-VISUAL MEDIA:

1. Refer to Sound and Hearing, Life Science Library, and make a drawing of the human ear. Label all parts. List the function of each part underneath your drawing.
2. Obtain the filmstrip entitled "How your Ear Works" (2nd copy), # FS-77-H, from the school library and view same.
3. Obtain the filmstrip entitled "How We Hear", #FS-1496-H, from the school library and view same.

OBJECTIVE # 6

To understand the fundamentals of sound and to be able to converse intelligently about this topic, one must become familiar with basic terminology.

Do the following to accomplish objective # 6.

ASSIGNMENT:

1. From any source which you may select, study the definitions of the following and prepare yourself for an oral quiz to be given covering the contents.

1. Vibration	6. Pitch	11. Mechanical energy
2. Compression	7. Amplitude	12. Decibel
3. Sound Wave	8. Frequency	13. Doppler Effect
4. Damping	9. Ultrasonic	14. Acoustics
5. Rarefaction	10. Infrasonic	

2. Use each in a sentence of your own making.

AUDIO-VISUAL MEDIA:

1. Listen to the record entitled "Science of Sound", #5014, to further establish vocabulary in your mind.

AUDIO-VISUAL MODE:

1. As an aid in mastering the spelling of, as well as the definition of above terms, divide the class or several persons into teams. With one person, preferably the teacher, acting as interlocutor, conduct as you would a spelling match.

2. Conduct a question and answer period with those who answer the question correctly being able to ask the next question. Points may be scored here to determine the winner.

OBJECTIVE # 7

New methods are being used in the fields of ultrasonics and infrasonics. Current research is necessary to keep abreast with this fast-moving science of sound.

Do the following to accomplish objective # 7.

Assignment:

1. Read the periodical, Current Science, Volume 56, Number 27, April 28, 1971 issue, pages 1-3.
2. Modern Science, page 158.
3. Use references at will here as news in this field is unpredictable.

AUDIO-VISUAL MEDIA:

1. Check library for any current news along this line. Use the following means of keeping informed of any "up to date" events occurring in this field.
   a. Science year books.
   b. Newspapers
   c. Medical journals
   d. Any scientific publication

AUDIO-VISUAL MODE:

1. Use pictures or charts available to prepare a poster indicating new methods being used in the following. Work together here in order to compile data obtained by other students. Sketches or drawings may be used in place of pictures.
   a. In the field of medicine
   b. In the field of astronomy
   c. In the field of navigation
   d. In the field of home economics
   e. In the field of psychiatry
   f. Other fields as they occur
2. Also enlist the help of others in the preparation of a bulletin board whereby current news media may be posted, as well as recent discoveries and experiments along these lines.

After completing the seven objectives in this LAP, turn in to your instructor for evaluation. Confer with your instructor about instructions for taking the post-test on this LAP. This test will include all objectives that have been presented in this learning activity package.

TEST OVER SOUND

Select the term that best completes each of the following statements. Place the letter of the term you choose in the space provided for the answer.

1. All sounds are produced by
   a. echoes c. vibrations
   b. resonance d. musical notes 1.....

2. Sound waves cause vibrations in the ear when the waves strike the
   a. three tiny bones c. nerve
   b. snail-shaped organ d. eardrum 2.....

3. The speed of sound in air is about
   a. 1,100 feet per second c. 186,000 feet per sec.
   b. 1,100 miles per minute d. 186,000 miles per sec.3.....

4. The part of a sound wave in which the air is pushed together is the
   a. rarefaction c. barrier
   b. compression d. blast 4.....

5. Sounds beyond the range of human hearing
   a. have no pitch c. are useless
   b. have no frequency d. are ultrasonic 5.....

6. The number of vibrations per second of any sound wave determines its
   a. frequency c. amplitude
   b. velocity d. quality 6.....

7. Rugs and draperies in your home
   a. change frequencies c. reduce echoes
   b. decrease vibrations d. increase noises 7.....

8. Sound is a form of
   a. chemical energy c. electrical energy
   b. mechanical energy d. radiant energy 8.....

9. The sound waves produced by a tuning fork held in your hand travel
   a. only away from you c. only up and down
   b. only toward you d. in all directions 9.....

10. The amplitude of a sound wave determines the sound's
   a. loudness c. vibration
   b. quality d. pitch 10.....

TEST (CON'T)

11. Most people can hear sounds made by objects vibrating between
a. 12 and 16,000 times per sec. c. 40 and 40,000 times per sec.
b. 16 and 20,000 times per sec. d. 0 and 80,000 times per sec. 11.....

12. When voice waves lose their energy, they are
a. damped c. heard
b. reflected d. interpreted 12.....

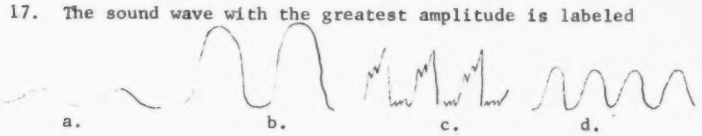
13. Middle C played on a piano and middle C played on a violin are always different in
a. frequency c. quality
b. speed d. amplitude 13.....

14. Soldiers, when firing a cannon, open their mouths so that both sides of their eardrums have
a. equal pressure c. equal air particles
b. unequal pressure d. unequal air particles 14.....

15. If the note "d" vibrates 288 times per second, the note one octave above "d" vibrates
a. 144 times per second c. 432 times per second
b. 288 times per second d. 576 times per second 15.....

16. The greater the frequency of a sound wave, the
a. softer the sound c. higher the pitch
b. louder the sound d. lower the pitch 16.....

17. The sound wave with the greatest amplitude is labeled

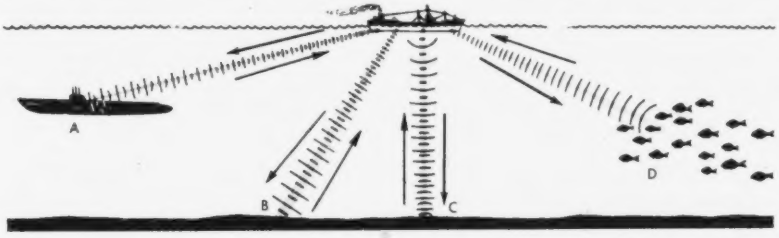


a. b. c. d. 17.....

TEST (CON'T)

STUDY CAREFULLY THE INFORMATION BELOW: THEN COMPLETE STATEMENTS 18 TO 20.

Sound travels about 4,700 feet a second in water. Sound waves sent out under water bounce off underwater objects and are reflected back to the ship sending them out. The navy used these facts during the last war to detect enemy submarines. They called their method SONAR, meaning sound navigation and ranging apparatus. It is being used today to find the depth of the ocean floor and to locate schools of fish.



18. The sound waves that take the longest time to return to the ship are sent out to
    a. A c. C
    b. B d. D 18.....

19. If it takes 2 seconds for the sound waves sent from the ship to travel to point C and return, the depth of the ocean at that point is about
    a. 2,350 feet c. 7,050 feet
    b. 4,700 feet d. 9,400 feet 19.....

20. Sonar depends upon the fact that sound waves
    a. travel rapidly c. produce echoes
    b. cause movement d. can be damped 20.....

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1. Blanc, Sam S., Fischler, Abraham S., & Gardner, Olcott, Modern Science, Holt, Rinehart & Winston, 1971, pages 148-168.

2. Brandwein, Paul F., Beck, Alfred D., Strahler, Violet, Hollingworth, Leland G., & Brennan, Matthew J., The World of Matter--Energy, Harcourt, Brace & World, Inc. 1964, pages 354-362.

3. Stevens, Steven S., Warshofsky, Fred & The Editors of Life, Sound and Hearing, Time Incorporated, 1965. (Life Science Library)

4. "Silent Sound Becomes Man's Slave", Current Science, Volume 56, Number 27, April 28, 1971.

THE WORLD OF THE MIDDLE AGES

The learning activity packet is a direct line between you and your teacher. The teacher guides, but you are free to choose from among a list of learning activities those you will do in order to accomplish the goals set for the unit of study.

The unit of study will encompass three cycles or eighteen days. It is divided into three lessons. Each lesson consists of three parts.

The first part of each lesson is the list of objectives. These are the specific skills, attitudes and facts that you will be expected to have acquired by the time you finish the lesson. In some cases, there are overall objectives, such as a project that you will work on for the entire time allowed for the unit of study. These are skills, attitudes, and facts for which you will be evaluated.

The second part of the packet allows you to choose what you will do in order to reach the goals stated in the first part. The learning activities are designed to teach, or present the concepts and skills required to meet the stated objectives, through a choice of methods and media. In some cases, you will be required to select specific activities, for instance, attendance on Large Group meetings.

The third part has not been included for every lesson, because it is not feasible for you to test yourself on such objectives as discussion in small group, for instance.

A Social Studies Learning Package

Prepared by:

Inez W. Jones
Greater Clark County
School Corporation

THE WORLD OF THE MIDDLE AGES

Rationale:

A study of the civilizations of the Middle Ages is important because many of our modern institutions had their origin in that period of time. Equally significant to us is the fact that modern man emerges as the medieval synthesis declines in Western Europe.

Objectives:

1. Given a delimited topic and a bibliography you will select and organize relevant facts into a meaningful form which your classmates may utilize. You will be allowed three cycles in which to complete this project. (See your Small Group Teacher for topic and sources.)

2. Using the notes you have taken from your reading, viewing, and listening, you will write a well organized essay characterizing the medieval culture of Europe as seen through its Art, architecture, literature and institutions. You will give specific examples to support your general statements.

3. In Small Group, you will be able to discuss the decline of the European Medieval synthesis and the appearance of modern tenets. You will utilize the information you have gathered from your reading, listening, viewing and discussing.

4. You will be able to discuss in Small Group the Art and architectural forms of European, Byzantine, Chinese, American Indian and Sub-Saharan civilizations of the Middle Ages. Consider subject, form, and technique of each.

5. Given a thirty-item objective-type test you will be able to select the correct term from the following list. You will be given fifteen minutes and will be expected to score at least 80%.

Franks	Joan of Arc
Pepin the Short	Great Schism and Babylonian captivity
Charlemagne	
Vikings	
feudalism	John Wycliffe
manoralism	John Huss
Common law	Mohammed
Parliament	Islam
Doomsday Book	Koran
grand jury	Magyars
petit jury	Romanesque
Becket	Hundred Years War

Innocent III
Gothic
William the Conqueror
Holy Roman Empire

You will be able to attain the above objectives by performing all or part of the learning activities listed with each lesson of this unit. In each group of activities, certain ones will be required. You must do those. In addition, to reinforce and enrich your learning experience you are encouraged to select others. Indeed it is expected that you will initiate other learning activities as you learn to function independently.

LESSON ONE: The Medieval European Synthesis

Objectives:

1. Using the notes you have taken from your reading, viewing, and listening write a well organized essay from an outline which your Small Group teacher has approved. In the essay, you will characterize the European Medieval culture by relating the Art, architecture, literature and its institutions to the thought and values of the people through the use of a dominant theme. Use specific examples to support your general statements.

Learning Activities:

1. *Attend LG (large group) lecture, "The Medieval Synthesis" (a film will be used, "The Flower of History," which relates the values of the values of the M.A. to the Art of Illumination).
2. *Study transparencies "Writing an Essay Examination."
3. View transparencies "Medieval Period I."
4. *In Large Group, view movie, Art of Middle Ages.
5. Listen to taped lecture, "Medieval Synthesis."
6. View Film Castles & Cloisters of Belgium.
7. *Read text, Men and Nations pp. 186-242.
8. Read Canterbury Tales. Chaucer
9. Listen to taped lecture, "Dante's Divine Comedy as a Synthesis of Medieval European Culture."
10. *See transparency "Organizing an Essay."
11. *From your SG teacher obtain a topic and sources for your unit project as described in Objective One page One.
12. From the Book List given you at the beginning of the term, select a book or books.

* This is a required activity.

SELF-TEST

1. Write a sentence outline for the essay in Objective One.

2. From your notes, select at least one specific example to support your topic sentences.

3. Have your SG teacher approve your outline.

If you were unable to write an outline, repeat learning activity # 2, or 10, or 5.

If you did not find appropriate examples among your notes, to support your topic sentences, select additional activities from the learning activities or review the ones you did previously to find suitable examples for your essay.

LESSON TWO: The Decline of the Medieval Synthesis

Objectives:

1. Given thirty-five minutes in which to write, with the use of the notes you have taken from your learning activities, describe the decline of the Medieval synthesis in Western Europe and the emergence of modern man and his institutions. Use specific examples to support your general statements.

2. In Small Group characterize one of the medieval cultures we have studied as you have seen it through a book you have read. (You may use any format, media or methodology you find convenient and relevant.)

Learning Activities:

1. Listen to taped lecture "Decline of Medieval Culture of Western Europe."

2. *View film "Art Portrays a Changing World--Gothic to Early Renaissance" or "Europe in Transition" in LG.

3. Listen to taped lecture "Rise of Towns."

4. Read Western Europe. McMillan

5. View transparencies, Medieval Period II.

6. Read The Divine-Comedy. Dante

7. Select a book from Reading List

Pre-test:

1. Write a sentence outline for an essay "The Decline of European Medieval Synthesis."

2. List your topic, format, media and methodology for characterizing a Medieval culture as seen through a book that you have read, are reading or have selected to read.

LESSON THREE: Asiatic and African Medieval Cultures and Review of Important terms.

Objectives:

1. Given a thirty-item objective type test, you will be able to select the correct term from the following list. You will be given 15 minutes and you will be expected to score at least 80%.

Franks	Common Law
Charlemagne	Doomsday Book
Pepin the Short	Parliament
Vikings	grand jury
Magyars	petit jury
feudalism	Becket
manor	Innocent III
William the Conqueror	Gothic
Holy Roman Empire	Romanesque
Joan of Arc	Hundred Years War
Great Schism and Babylonian Captivity	John Huss
John Wycliffe	Mohammed
Islam	
Koran	

2. In Small Group discussion, you will be able to describe the Art and architectural forms of European, Byzantine, Chinese, American Indian and Sub-Saharan civilizations of the Middle Ages. Consider subject, form, and technique of each.

3. You have completed the project which you were directed to do in Objective One page One of this LAP. In Small Group, you will give a presentation in a form that your classmates will find interesting and relevant. You may ask the assistance of resource persons.

Learning Activities:

1. Listen to taped lecture "Feudalism."

2. Review the work you have done in this unit. Write definitions or identifications of terms listed in Objective One of this lesson.

3. Listen to taped lecture "Manoralism."

4. Read China: Selected Readings, Kublin
5. Read Africa: Selected Readings, Kublin

6. *See film, "African Rhythms" in Large Group.

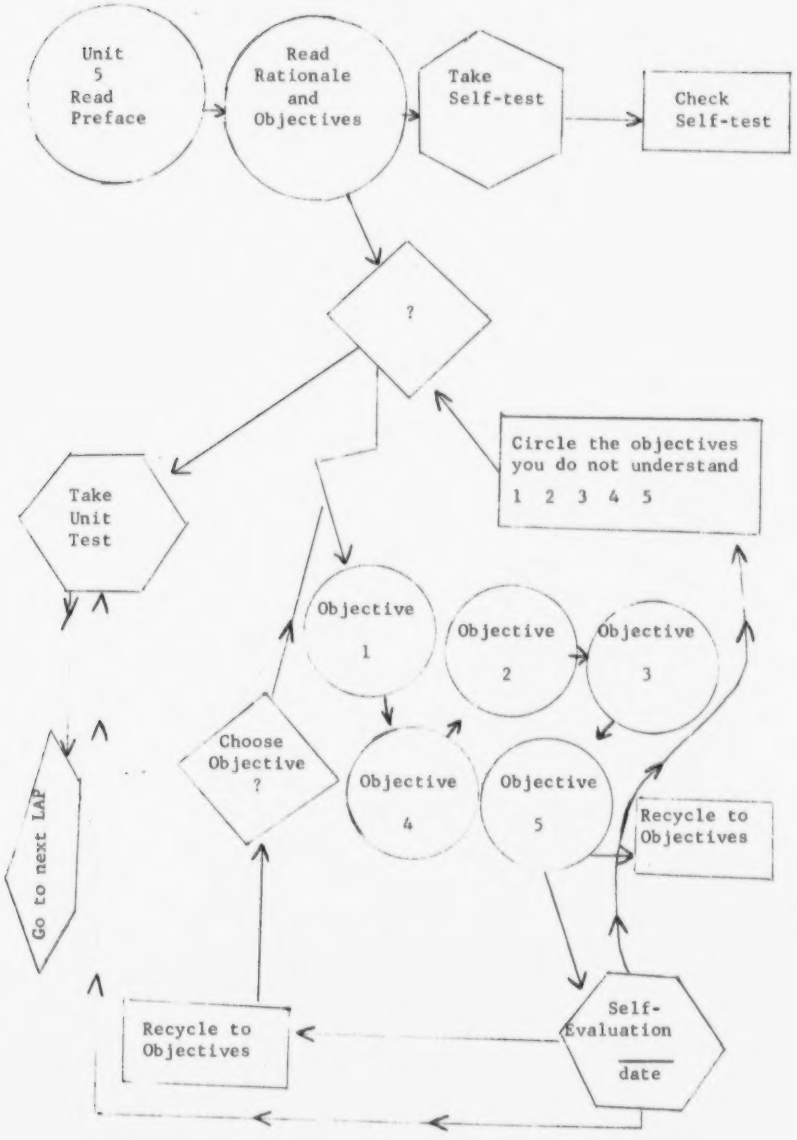
7. *Read text, Men and Nations pp. 245-262.

8. View film, "African Change: Continent below the Sahara." LG.

9. View film, "Treasure of Time: Oriental Art."

10. *See movie, Southeast Asia: A Cultural History. LG.

FLOW CHART


Unit 5 Read Preface
Read Rationale and Objectives
Take Self-test
Check Self-test
?
Circle the objectives you do not understand
1 2 3 4 5
Take Unit Test
Objective 1
Objective 2
Objective 3
Choose Objective ?
Objective 4
Objective 5
Recycle to Objectives
Go to next LAP
Recycle to Objectives
Self-Evaluation
date

L E A R N I N G A C T I V I T I E S P A C K E T

FILING FUN-DAMENTALS

Business Education
Learning Package

prepared by:

James Sylvester
Larry Cunningham
Greater Clark County
School Corporation

FILING FUN-DAMENTALS

(Student is to have completed LAP on indexing prior to beginning this LAP.)

Concept: The business student needs a working knowledge of filing equipment, supplies, and methods of filing.

Objectives:

1. You will be able to list and identify 5 different types of filing equipment.
2. You will be able to demonstrate the uses of the necessary supplies such as tabs, folders, and out cards.
3. Given a stack of 25 cards, the student will be able to file them correctly according to the rules of alphabetical and numerical filing.

Pretest: See teacher to obtain Pretest.

Learning activities:

1. Read pages 322-336 in your text, Introduction to Business.
2. Visit school library to observe filing equipment and filing procedures in use.
3. Do exercises on filing provided by the teacher.
4. View film: Filing Procedures in Business
5. Discuss in your small groups the rules for indexing and filing.

Post-test: See teacher to obtain a copy of Post-test.

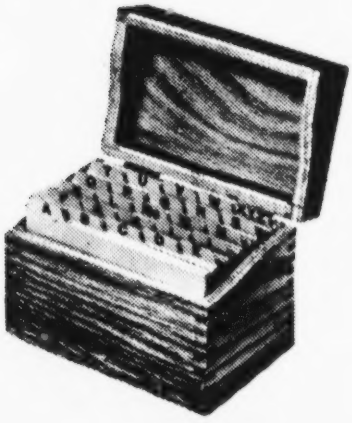
FILING FUN-DAMENTALS

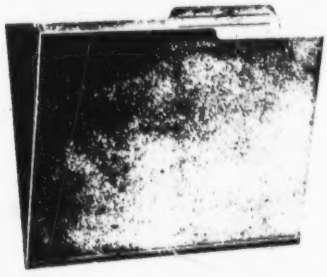
PRE-TEST

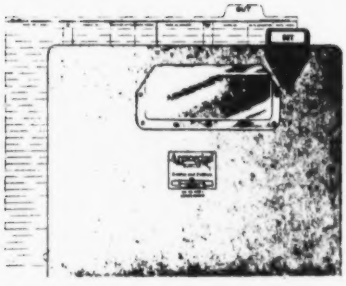
Index and file the following list of names.

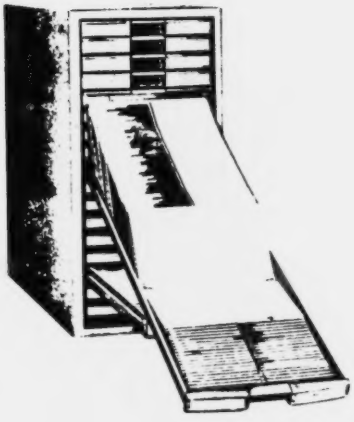
Names	Names Indexed and Filed
1. George L. Seadzer	1. _____
2. Anthony E. Seadler	2. _____
3. Cecil Seale	3. _____
4. Chester Seale	4. _____
5. Gertrude Seale	5. _____
6. Tommie Seabolt	6. _____
7. David A. Sealey	7. _____
8. Eddie Seagraves	8. _____
9. Chester E. Seale	9. _____
10. George E. Seaman	10. _____
11. Verl W. Seabolt	11. _____
12. Bertram Seabrooks	12. _____
13. Catherine Seagraves	13. _____
14. John Seales	14. _____
15. Owen W. Seaborn	15. _____
16. A. B. Searcy	16. _____
17. David G. Seabrook	17. _____
18. Paul J. Seadler, Jr.	18. _____
19. Clayton Seal	19. _____
20. Richard Paul Seadler	20. _____

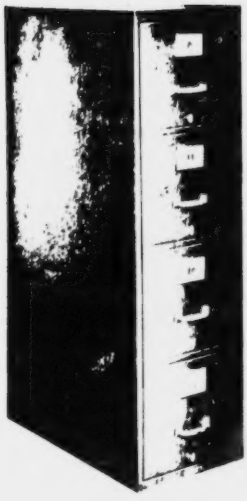
Identify 7 of the following 9 pieces of filing equipment.

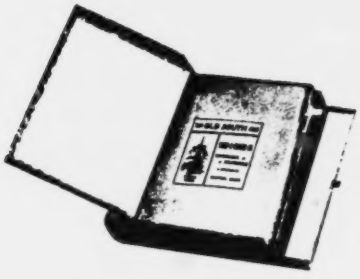


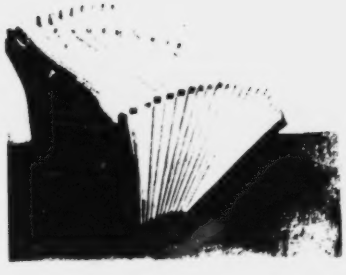












FILING FUN-DAMENTALS
POST-TEST

I. Matching

____1. filing

____2. battery

____3. spindle file

____4. vital statistics

____5. surname

____6. recording

____7. inventory

____8. ledger

____9. shannon file

____10. given name

____11. bellows file

____12. follower

A. The process of registering information in some permanent form.

B. Includes a board with two metal arches or hinges which swing open to add or remove material.

C. A metal plate which may be moved forward or back to help hold material in an upright position in a vertical filing cabinet.

D. A row of vertical filing cabinets, side by side.

E. A bound or loose-leaf book which is used to record information which deals with money or other types of figures.

F. The process of putting records away safely and yet ready for instant use.

G. Birth, marriage, and death records.

H. Opens like an accordion when being used.

I. A person's last name.

J. Consists of a metal spike fastened to a wooden or metal base.

K. A person's first name.

L. A list showing goods on hand and their value.

II. Multiple Choice

____ 1. A type of file which consists of material which has a small edge of each record projecting slightly above the record next to it is called a:

A. box file
B. visible index file
C. bellows file
D. shannon file.

____ 2. A piece of cardboard creased at the bottom to hold papers, letters, and other records is called a:

A. guide
B. ledger
C. journal
D. folder.

____ 3. A type of file which resembles a book is a:

A. box file
B. vertical
C. spindle file
D. visible index file.

____ 4. The classified section of the telephone directory is an example of:

A. numerical filing
B. geographic filing
C. chronological filing
D. subject filing.

____ 5. A card file is particularly useful for:

A. cancelled checks
B. receipts
C. recipes
D. letters.

____ 6. Filing by date is known as:

A. chronological filing
B. numerical filing
C. decimal filing
D. vertical filing.

____ 7. Dividers showing the different letters of the alphabet are called:

A. ledgers
B. guides
C. journals
D. folders.

____ 8. The process of marking all possible places where material can be located is known as:

A. an index
B. a code
C. a follower
D. a cross reference.

____ 9. A wood or metal cabinet with 3 or 4 drawers used to keep records is called a:

A. visible-index file
B. bellows file
C. vertical file
D. box file.

____10. Which of the following pieces of information is not found on an out card?

A. name of folder taken out
B. when material will be returned
C. date material was taken out
D. name of person checking material out.

III. Listing

1. List the four requirements of a good record (the 4 C's)

A. _____

B. _____

C. _____

D. _____

2. List in order the five steps involved in the filing procedure.

A. _____

B. _____

C. _____

D. _____

E. _____

3. List the two main types of filing systems.

   A. _____

   B. _____

IV. Index and file the following list of names.

Names	Names Indexed and Filed
1. Cady & Ross, Inc.	1. _____
2. John R. Clawson	2. _____
3. Miss Lucille Titus	3. _____
4. Collins-Williams, Inc.	4. _____
5. C. Vernon Rand	5. _____
6. Donald Lombardi & Son	6. _____
7. John LeBrun	7. _____
8. K and R Drug Company	8. _____
9. Gifford Brothers	9. _____
10. Edward Marsh & Company	10. _____
11. Jas. E. MacDowell	11. _____
12. Benham, Jordan & Perkins	12. _____
13. J. K. Haley & Sons	13. _____
14. Wm. Dalton	14. _____
15. Dr. James V. Thomson	15. _____
16. Day and Night Repair Co.	16. _____
17. Des Moines Auditing Co.	17. _____
18. J. Henry DeGarmo	18. _____
19. Barton, Meade & Abbott	19. _____
20. The Main Street Shop	20. _____

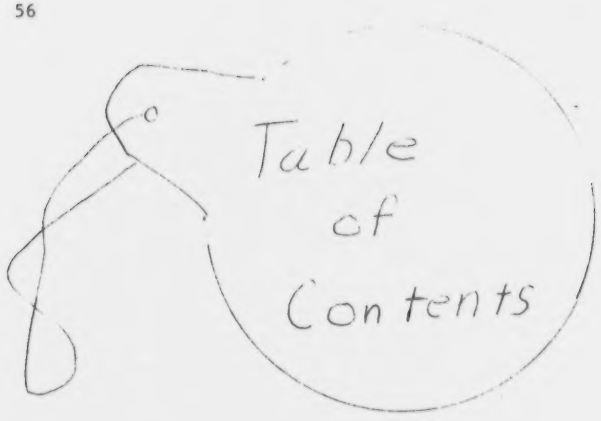
NAME_____

SMALL GROUP TEACHER_____

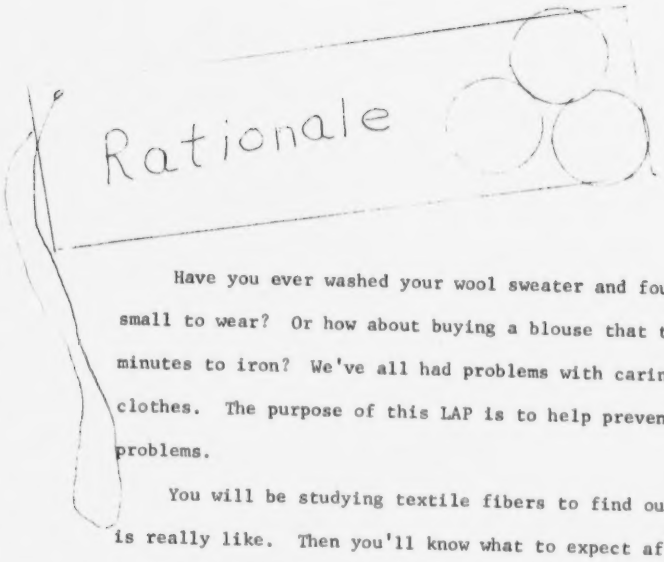
Home Economics
Learning Package

prepared by:

Virginia A. Tipton
Greater Clark County
School Corporation



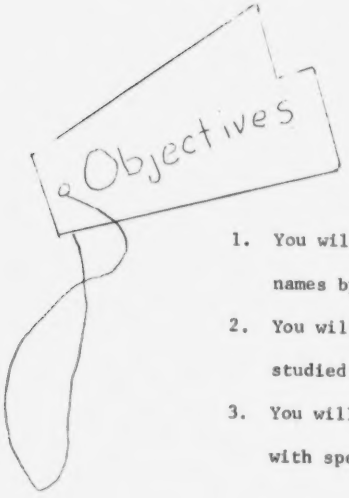
	Page	
Rationale	3	[57]
Objectives	3	[57]
Activity Assignment Sheet	4	[58]
Self-Test	6	[60]
Quest Ideas	8	[62]
Self-Test Answers	9	[63]
Appendix A	10	[64]



Have you ever washed your wool sweater and found it was too small to wear? Or how about buying a blouse that takes 20 minutes to iron? We've all had problems with caring for our clothes. The purpose of this LAP is to help prevent similar problems.

You will be studying textile fibers to find out what each is really like. Then you'll know what to expect after you've read the tag and decided to buy that new dress or pantsuit!

Keep reading and study the objectives CAREFULLY!!!!!!!!



1. You will distinguish between generic and trade names by choosing generic names from garment labels.
2. You will describe characteristics of the 19 fibers studied.
3. You will suggest how to properly care for garments with specific fiber content.

ACTIVITY ASSIGNMENT SHEET:

Each student is responsible for at least completing the reading assignment, one "see" assignment and one "do" assignment. These will be reported to your small group. Feel free to complete as many activities as you need to meet the objectives.

DO:

Acetone Test--
1. You will need fingernail polish remover and fabric containing acetate.
2. Put a few drops of the remover on the acetate.
3. Record the results.

Resiliency Test--
1. Obtain at least 5 samples including 1 vegetable, 1 animal and 3 man-mades.
2. Crush fabrics in your fist one at a time for one minute each. Be sure to record fiber content of each.
3. Spread on table to see which shows the least wrinkles.
4. Rank using number one for the one with the least wrinkles.
5. Return your samples to their containers.

Hot Iron Test--
1. Set the iron on the linen setting.
2. Use at least 5 samples including 1 vegetable, 1 animal and 3 man-mades.
3. Let the iron lay on the corner of each for 30 seconds.
4. Record what happens to each sample.

"Shopping"--
1. Choose a specific type of garment such as blouse, pants, shirts, underwear.
2. Go to 1 specialty store, 1 department store and 1 discount store to examine fiber contents.
3. Make a chart telling how often you saw each fiber in that type of garment.

Absorbancy Test--
1. Obtain at least 5 samples including 1 vegetable, 1 animal, 3 man-mades plus an eyedropper and the grapejuice.
2. Put 2 drops of grapejuice on each sample.
3. Rate how the grapejuice is absorbed according to the following: immediately, slowly, very slowly or beads on surface.
4. Record results.

Flame Test--

1. Obtain at least 5 samples including 1 vegetable, 1 animal, 3 man-mades.
2. Place fabric in tweezers. Hold a lighted match under fabric. Be sure to hold everything over an EMPTY wastebasket.
3. Observe and record the following:
   a. the reaction of the fabric, e.g. melts, burns quickly or slowly, and afterglow.
   b. odor, e.g. burning paper, burning hair, bead forms with no odor, melts with no odor.

SEE:

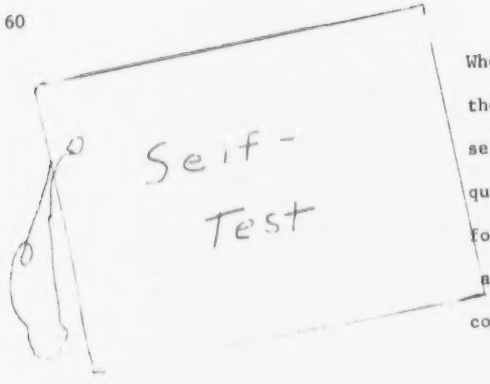
View filmstrip titled "Understanding Today's Textiles"

View filmstrip titled "TLC for Textiles"

View film titled "Fabrics on the Move" (in AV center)

READ:

Select, read and take notes on at least three references for each fiber. See Appendix A for your choices.



When you feel you have completed the objectives take the following self-test. If you answer 25 questions correctly you are ready for the post test. If you do not answer 25 questions correctly complete more study activities.

Place a + in the blank if the statement is true and a 0 if the statement is false.

___1. Untreated cotton is very flammable.

___2. Silk should be machine washed.

___3. Fabric made from linen will not wrinkle easily.

___4. Wool is a resilient fiber.

___5. The iron should be set on high when pressing acetate.

___6. The most elastic fiber is rubber.

___7. Acrylic is a trade name referring to the generic fiber Creslan.

___8. Fluorocarbon is extremely heat resistant.

___9. Glass curtains should be washed with bath towels.

___10. Synthetic wigs are made of modacrylic.

___11. The strongest fiber is rayon.

___12. Olefin fabrics are resistant to grease stain and mildew.

___13. Polyester fabrics need little pressing.

___14. The most absorbent fiber is rayon.

___15. Rubber may be safely bleached.

___16. Outdoor carpeting which is mildew resistant and looks like grass is made from nylon.

____17. Fabrics from Spandex should be dried in a hot dryer.

____18. The most wool-like man-made fiber is acetate.

____19. A blend of polyester and cotton should be pressed with the iron on low.

____20. Glass fabrics will not burn.

Place a + in front of the generic names and an 0 in front of trade names.

____21. Acetate

____22. Rayon

____23. Acrilon

____24. Teflon

____25. Herculon

____26. Dacron

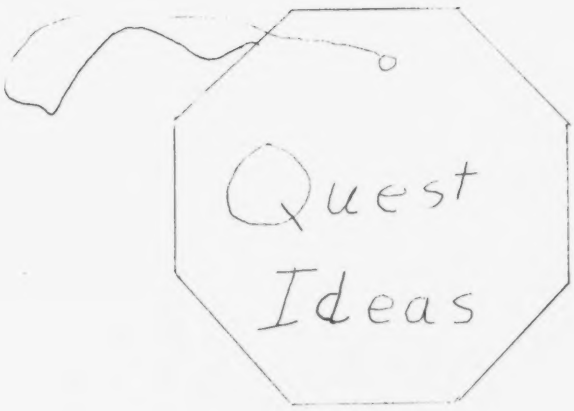
____27. Nylon

____28. Modacrylic

____29. Celacloud

____30. Anidex

Now that you have completed the self-test check yourself for the correct answers. They are on page 9 [63].



If you are interested in textiles and would like to learn more here are some suggested activities. You may have an idea of your own to suggest. See your teacher before proceeding.

Select a fiber and collect as many samples as you can identify. Suggest possible patterns in which these samples could be used.

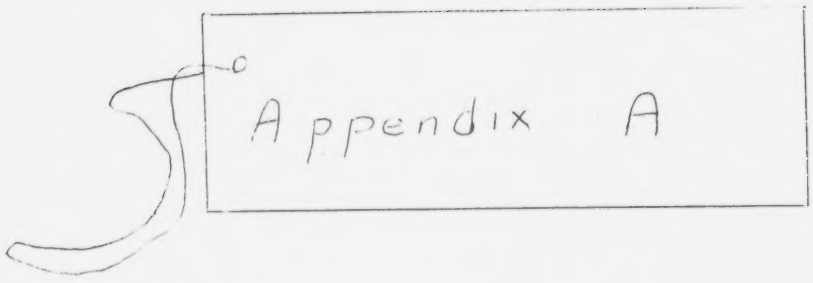
Select a fiber which has many uses. Construct a poster or bulletin board with labeled examples of as many of these products as possible.

Make a collection of tags and labels to use in a notebook, on a bulletin board or on a poster. Label generic names to determine those most commonly used.

Make a collection of tags and labels. Analyze each to determine what is good about each label and what could be improved. Particularly watch for fiber content and care instructions.

Self-Test Answers

1.	=
2.	0
3.	0
4.	+
5.	0
6.	0
7.	0
8.	+
9.	0
10.	+
11.	0
12.	+
13.	+
14.	+
15.	0
16.	0
17.	0
18.	0
19.	+
20.	+
21.	+
22.	+
23.	0
24.	0
25.	0
26.	0
27.	+
28.	+
29.	0
30.	+



Cotton:

Bissell pp. 158-159
facts about fibers pp. 39-42
Fiber to Fabric pp. 135-157
textile fibers....(green) p. 15
textile fibers....(brown) p. 19
Textile Handbook pp. 13-14
Textiles for Teens pp. 18-19
Textiles pp. 36-39

Linen

"The Story of Irish Linen"
"Linen for Modern Living"
"Fashion Flair for Men's Irish Linen Hankerchiefs"
"Irish Linen from this day forward"
"This is Irish Linen"
"It's So Easy to Sew with Irish Linen"
"How to Care for Irish Linen"
Bissell pp. 158-161
facts about fabrics pp. 19-21
Fiber to Fabric pp. 158-170
textile fibers....(green) p. 19
textile fibers....(brown) p. 19
Textile Handbook p. 14
Textiles for Teens pp. 20-21
Textiles pp. 40-42

Wool:

"Glossary of Wool Terms"
"Glossary of Wool Fabric Terms"
"Wool--From Fleece to Fabric"
"Characteristics of Woolen and Worsted Fabrics"
"Beauty Secrets for Your Wool Wardrobe"
"The Story of Wool"
Wool as an Apparel Fiber
Bissell pp. 160-161
facts about fibers pp. 46-49
Fiber to Fabric pp. 171-187
textile fibers....(green) p. 37
textile fibers....(brown) p. 45
Textile Handbook p. 16
Textiles for Teens pp. 15-18
Textiles pp. 25-31

Silk:

"Only Silk Is Silk"
"Silk Sells"
"What Is Silk?"
Bissell pp. 160-161
facts about fibers pp. 23-25
Fiber to Fabric pp. 196-210
textile fibers....(green) p. 32
textile fibers....(brown) p. 43
Textile Handbook pp. 15-16
Textiles for teens pp. 19-20
Textiles pp. 20-24

Hairs (Mohair, Angora, Cashmere, Camel's hair):

"Textile Handbook" pp. 16-17
Fiber to Fabric pp. 187-191
textile fibers....(green) pp. 25
textile fibers....(brown) pp. 23
Textile Handbook pp. 16-17
Textiles for Teens pp. 10-11
Textiles pp. 32-33

Acetate:

"Celacloud"
"Celanese Acetate"
"Rayon and Acetate"
"Fibers Yarns and Fabrics" p. 8
"Textiles for Today and Tomorrow" p. 5
"Estron Acetate Fiber"

Acrylic:

"Orlon Acrylic Fiber"
"Creslan Acrylic Fiber"
"Textiles for Today and Tomorrow" p. 6
"How Smart to Sew..."
Bissell pp. 152-153
facts about fibers pp. 43-45
Fibers for Contemporary Fabrics p. 21
Fiber to Fabric pp. 252-271
Man Made Fabrics pp. 16-18
textile fibers....(green) pp. 9, 16, 27, 39
Textile Handbook pp. 18-20
Textiles pp. 79-83

Anidex: (Only 2 readings required for Anidex)

textile fibers....(brown) p. 18
American Fabrics, Winter 69-70, p. 73

Fluorocarbon: (Only 1 reading required for Fluorocarbon)

facts about fibers p. 16

Glass:

"Fact Sheet"
"How fire-safe fabrics are made of Fiberglass yarns"
"Textiles for Today and Tomorrow" p. 7
Bissell pp. 152-155
facts about fibers pp. 50-53
Fibers for contemporary Fabrics pp. 22-23
Fiber to Fabric pp. 288-292
Man Made Fibers pp. 23-24
textile fibers....(green) p. 21
textile fibers....(brown) p. 20
Textile Handbook p. 21
Textiles pp. 93-95

Metallic:

Bissell pp. 152-153
facts about fibers p. 22
Fiber to Fabric pp. 310-311
Man Made Fibers p. 24
textile fibers....(green) p. 24
textile fibers....(brown) p. 21
Textile Handbook pp. 21, 37

Modacrylic:

"Verel"
"Verel Modacrylic Fiber"
"A Glimpse of Tennessee Eastman"
"Textiles for Today and Tomorrow" p. 6
Bissell pp. 154-155
facts about fibers pp. 36-37
Fibers for contemporary Fabrics pp. 21-22
Man Made Fibers pp. 15-16
textile fibers....(green) pp. 28, 34
textile fibers....(brown) pp. 22-23
Textile Handbook pp. 21-22
Textiles pp. 84-85

Nylon:

"Home Sewing Techniques for Fabrics of Qiana Nylon"
"Textiles for Today and Tomorrow" p. 6
"Nylon: the first 25 years"
"Textile Topics: The Nylon Fiber Family"
"Cantrece nylon"
Bissell pp. 154-155
facts about fibers pp. 11-15
Fibers for contemporary Fabrics p. 19
Fiber to Fabric pp. 237-246
Man Made Fibers pp. 14-15
textile fibers....(green) p. 26
textile fibers....(brown) p. 23
Textile Handbook p. 22
Textiles pp. 69-75

Olefin:

"Open the Door to Herculon"
"The Wide World of Herculon"
"A Glimpse of Texas Eastman"
"Textiles for Today and Tomorrow" p. 7
Bissell pp. 154-155
facts about fibers pp. 33-35
Fibers for contemporary Fabrics p. 23
Man Made Fibers p. 21
textile fibers....(brown) p. 31
Textile Handbook p. 23
Textiles p. 85-87

Polyester:

"Fortrel"
"Fortrel Fiberfill"
"Sewing tips for fabrics made with Kodel polyester"
"Kodel II polyester"
"A Glimpse of Carolina Eastman"
"Textiles for Today and Tomorrow" pp. 6-7
"that wonderful washday work saver..."
"Textile Newsletter: Polyester"
"Textile Topics: The Polyester...a Family of Fibers"
"Kodel Polyester Fiber"
Bissell pp. 154-157
facts about fibers pp. 54-57
Fibers for contemporary Fabrics p. 20
Fiber to Fabric pp. 247-251
Man Made Fibers pp. 18-19
textile fibers....(green) pp. 17, 20, 22, 35
textile fibers....(brown) pp. 33-40
Textile Handbook pp. 23-24
Textiles pp. 75-79

Rayon:

"Rayon and Acetate"
"Textiles for Today and Tomorrow" p. 5
"Fortisan"
Bissell pp. 156-157
facts about fibers pp. 29-32
Fibers for contemporary Fabrics p. 15
Fiber to Fabric pp. 212-221
Man Made Fibers pp. 8-10
textile fibers....(green) pp. 11-13, 30
textile fibers....(brown) pp. 40-42
Textile Handbook pp. 24-26
Textiles pp. 50-60

Rubber:

Bissell pp. 156-157
facts about fibers p. 28
Man Made Fibers pp. 24-25
textile fibers....(brown) p. 42
Textile Handbook pp. 26-27
Textiles pp. 90-91

Saran:

Bissell pp. 156-159
facts about fibers pp. 58-59
Fiber to Fabric pp. 285-287
Man Made Fibers pp. 21-22
textile fibers....(green) p. 31
textile fibers....(brown) p. 42
Textile Handbook p. 27
Textiles pp. 88-89

Spandex:

"Textiles for Today and Tomorrow" p. 7
Bissell pp. 156-157
facts about fibers pp. 17-18
Fibers for contemporary Fabrics p. 22
Man Made Fibers pp. 19-20
textile fibers....(green) p. 23, 36
textile fibers....(brown) pp. 43-44
Textile Handbook p. 27
Textiles pp. 90-92

Name_____

Small Group_____

PRE-TEST--TAG ALONG WITH TEXTILES

1-10. Choose the generic name from labels 1-10. Write the generic name in the appropriate blank.

_____1. _____6.

_____2. _____7.

_____3. _____8.

_____4. _____9.

_____5. _____10.

Matching: Place the letter of the characteristic best describing the fiber in the blank to the left of the fiber.

C	11. Nylon	A. hair-like
A	12. Modacrylic	B. scaly
B	13. Wool	C. strongest
F	14. Polyester	D. breaks easily
D	15. Glass	E. looks like grass
		F. most resilient

B	16. Cashmere	A. wool-like man-made
E	17. Rayon	B. very expensive
F	18. Olefin	C. breaks easily
A	19. Acrylic	D. most elastic
D	20. Anidex	E. most absorbent
		F. mildew resistant

From the following story place the correct word in the blank at the left. Be sure to match the number of the blank in the story to that to the left. Each blank needs the name of a fiber.

Becky has really been busy lately. Her mother has been sick and Becky is responsible for caring for the family's laundry. The first week was really wild. First

1. glass she put the 1 curtains in the washer with her dad's shirts and he got hives from the pieces of curtains. Then she bleached her mother's expensive girdle and the

2. spandex 2 turned yellow. Becky's slips looked dirty because

3. nylon the 3 attracted dirt from her blouses in the same wash. Her mother's best dress is ruined because Becky spilled

4. silk water on it and the smooth, lustrous 4 waterspotted.

5. wool She did remember to wash her little sister's 5 sweater in cold water so it wouldn't shrink. She threw her dad's sweater in hot water in the machine and it

6. acrylic turned out fine because it was wool-like 6. She

7. rayon thought the towels would never dry. 7 is the most absorbent fiber so it takes longer to dry. Thank goodness when the shirts were dry they weren't wrinkled

8. polyester because they were 8 and cotton.

After the wash was done she wanted to be especially

9. modacrylic helpful so she washed her mother's 9 wig in cold water. Then she fried a hamburger and the grease splattered on the kitchen carpet. When it didn't stain she realized the

10. olefin carpet must be 10.

Now that her mother is better Becky has decided to learn more about fibers so that her laundry habits can avoid making her family ill!!!!!

NAME_____

TEXTILE POST-TEST

Multiple Choice: Place the letter of the best answer in the blank.

B 1. The strongest fiber is:
   A. wool.
   B. nylon.
   C. modacrylic.
   D. linen.

C 2. A synthetic wig is most likely to be made of:
   A. acrylic.
   B. anidex.
   C. modacrylic.
   D. polyester.

D 3. The most absorbent fiber is:
   A. linen.
   B. olefin.
   C. silk.
   D. rayon.

A 4. Outdoor carpeting which looks like grass is made from:
   A. saran.
   B. nylon.
   C. cotton.
   D. spandex.

C 5. The most elastic fiber is:
   A. rubber.
   B. rayon.
   C. spandex.
   D. saran.

D 6. It is best to wash a woolen sweater in:
   A. hot, soapy water, rinse and put in hot dryer.
   B. cool, soapy water, rinse, and put in hot dryer.
   C. cool, soapy water, rinse and hang up to dry.
   D. cool, soapy water, rinse and lay flat on towel to dry.

A 7. It is best to wash a spandex girdle in:
   A. warm, soapy water, rinse and dry in cool dryer.
   B. warm, soapy water with bleach, rinse and dry in cool dryer.
   C. hot, soapy water with bleach, rinse and dry in cool dryer.
   D. hot, soapy water, rinse and dry in hot dryer.

B 8. Wool is desirable in winter because it:
A. wrinkles easily.
B. holds in body heat.
C. does not need to be dry cleaned.
D. does not shed water.

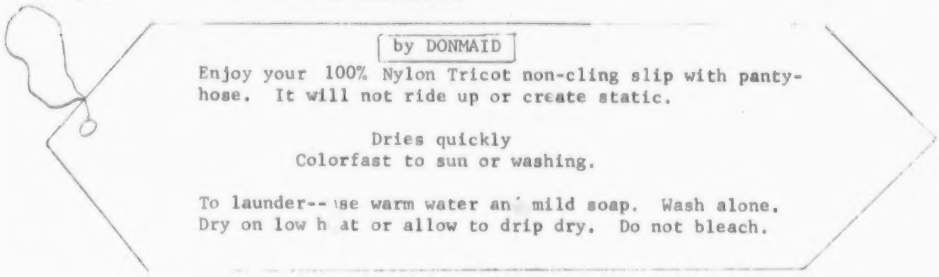
D 9. The Textile Fiber Products Identification Act requires that labels list:
A. how to care for the garment.
B. if the garment is colorfast.
C. fiber content by trade name.
D. fiber content by generic name.

C 10. Natural hair fibers are:
A. angora, acrylic, wool.
B. wool, modacrylic, acrylic.
C. mohair, cashmere, angora.
D. modacrylic, mohair, angora.

C 11. Natural fibers are classified as:
A. plant.
B. man-made.
C. plant and animal.
D. man-made and plant.

B 12. A carpet that grease does not stain is made from:
A. glass.
B. olefin.
C. acrylic.
D. metallics.

True-False: Using the information on the following tag, indicate whether each item below is correct or incorrect. Place a + if the item is correct; place an 0 if the item is incorrect.


by DONMAID
Enjoy your 100% Nylon Tricot non-cling slip with panty-hose. It will not ride up or create static.
Dries quickly
Colorfast to sun or washing.
To launder--use warm water and mild soap. Wash alone. Dry on low heat or allow to drip dry. Do not bleach.

0 13. The slip will fade in warm water.

\+ 14. The slip will not cling or ride up while being worn.

0 15. It is safe to use chlorine bleach.

\+ 16. The brand name of the slip is Donmaid.

0 17. The slip should be dried with the dryer set on hot.

0 18. The generic name for the fiber in the slip is tricot.

Fill in the Blank: Place the missing word or words for each statement in the blank at the left.

19-25. The generic names of 7 man-made fibers are _____, _____, _____, _____, _____, _____, _____.

cotton, linen 26-27. Two plant fibers are ____, ____.

wool, silk, cashmere, angora, mohair 28-29. Two animal fibers are ____ and ____.

filament 30. The name for a very long fiber is ____.

staple 31. The name for a very short fiber is ____.

silk 32. The fiber that has a natural luster, lightweight, beautiful colors, is expensive, deteriorates from perspiration is ____.

cotton 33. The fiber that is absorbent, cool, washable in high temperatures and can be bleached is ____.

spandex 34. The fiber that has excellent stretch, is lightweight, and is affected by chlorine is ____.

glass 35. The fiber that won't stretch, resists fire, rot, heat and leaves particles after washing ____.

rayon 36. The cheapest fiber is ____.

linen 37. The fiber that is durable, absorbent and usually imported from Ireland or other European countries is ____.

reused 38. Wool that has been salvaged from wool materials already used is called ____.

silk 39. The only natural filament fiber is ____.

wool 40. The fiber that repels water, is warm, resilient, weak when wet and has scales is ____.

metallic 41. The fiber that is dry cleanable, weak, used for decoration and discolored by perspiration is ____.

nylon 42. The fiber that attracts soil in laundry is ____.

acetate 43. The fiber that is permanently white, has poor strength, and dissolves in nail polish remover is ____.

polyester 44. The fiber that is very resilient, strong, versatile, blends well and has a low ironing temperature is ____.

acrylic 45. The fiber that is lightweight, bulky, wool-like and washable is ____.

anidex 46. The fiber that was named in 1969, blends well, is very elastic, is not affected by bleach is ____.

fluorocarbon 47. The fiber that is used ir spacesuits, heat resistant, and is used in indoor-outdoor carpeting is ____.

olefin 48. The fiber that is strong, low cost, stain resistant, and is used in indoor-outdoor carpeting is ____.

modacrylic 49. The fiber that is warm, lightweight, fur or hair-like and melts is ____.

rubber 50. The fiber that stretches, is low cost, non-absorbent, washed frequently, and harmed by bleach is ____.

fluorocarbon 47. The fiber that is used in spacesuits, heat resistant, and is used in indoor-outdoor carpeting is ____.

olefin 48. The fiber that is strong, low cost, stain resistant, and is used in indoor-outdoor carpeting is ____.

modacrylic 49. The fiber that is warm, lightweight, fur or hair-like and melts is ____.

rubber 50. The fiber that stretches, is low cost, non-absorbent, washed frequently, and harmed by bleach is ____.

The following is a general description of activities to be used in large group and small groups. The following pages are for teacher use only.

Large Group #1

Film "Can You Imagine?" (concerns role of textiles) 13 min.

Transparency lecture -- 1. Tell differences between natural and man-made fibers (including generally how each is made).
2. Explain origin and use of generic names.

Large Group #2

Discuss: Natural Fibers
1. How produced
2. Properties--animal vs. vegetable
3. Types available, e.g. wool-virgin, reprocessed, reused

Film "Only Silk Is Silk" 14 min.

Small Groups

Demonstrate--How fabrics gain characteristics from properties of yarn.

Set up charts for recording information--include vocabulary preview.

Review natural fibers--demonstrate use of chart.

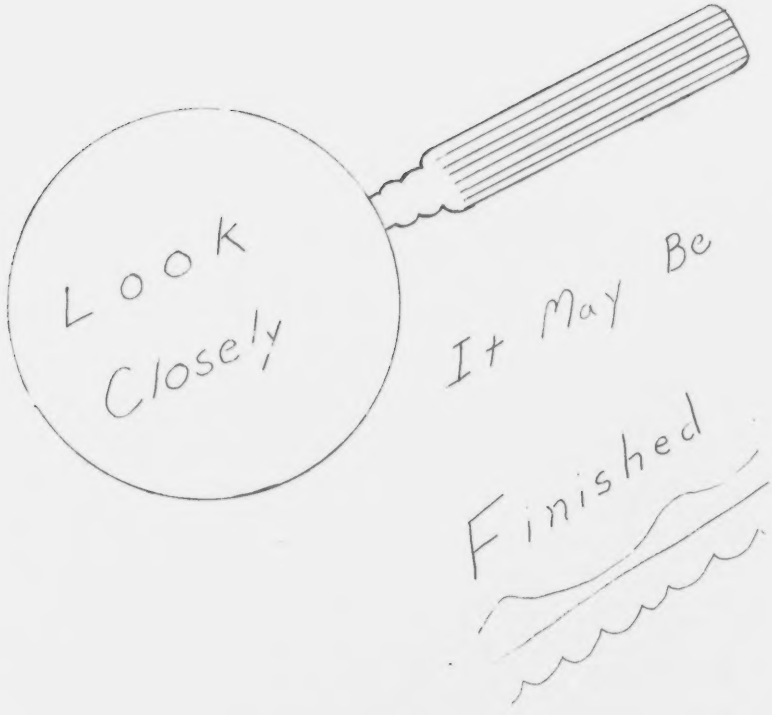
Presentation of LAPs - remind that finishes may affect results of experiments.

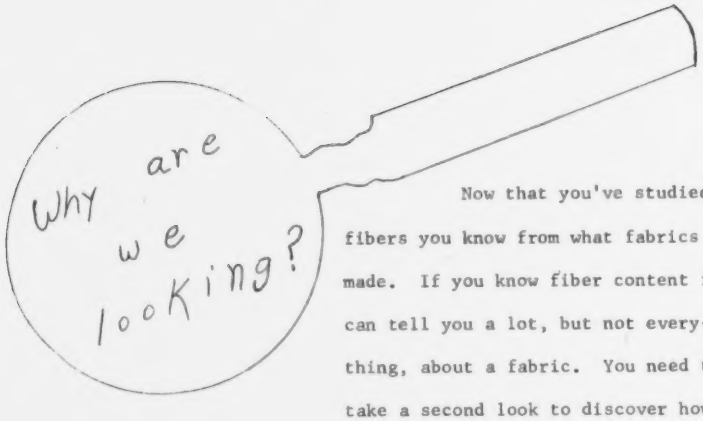
Resource center review--Center will still be new to students.

Record and React to independent study "do" assignments--apply to charts. Should be student led.

Discuss man-mades to complete chart information.

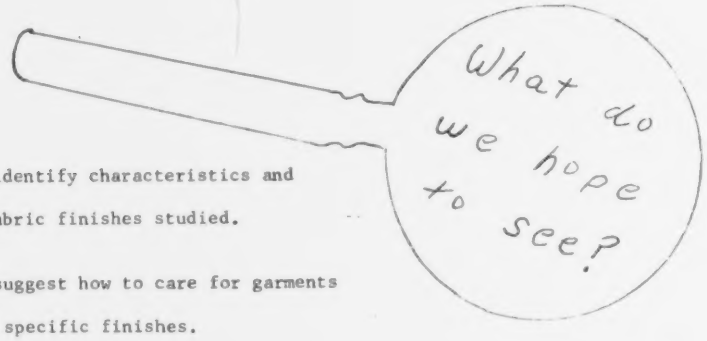
Fiber Quiz Quips--game to reinforce learnings. These will take 2 mods to complete.


Look
Closely
It May Be
Finished



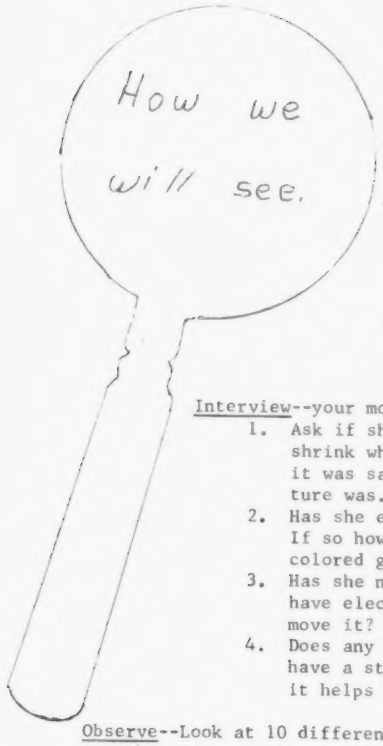
Now that you've studied fibers you know from what fabrics are made. If you know fiber content it can tell you a lot, but not everything, about a fabric. You need to take a second look to discover how the fibers or fabrics have been treated. These treatments are called finishes.

Finishes may be applied at several times during the construction of fabric--to yarns alone or the completed fabric. You will be studying how you can expect various finishes to perform and how you can keep them in good condition.



You will identify characteristics and uses of fabric finishes studied.

You will suggest how to care for garments that have specific finishes.



Complete as many of the learning activities as you need to reach the objectives. All students will need to complete the reading selections. Results of all activities should be written and given to your small group instructor.

Interview--your mother, a teacher, neighbor, etc.

1. Ask if she has ever bought a garment and had it shrink when washed. Ask if she can remember if it was sanforized and what the water temperature was.
2. Has she ever had one garment fade on another? If so how did she remove color from the discolored garment? What kind of garment faded?
3. Has she noticed the kinds of garments which have electricity? What has she done to remove it?
4. Does any household fabric that she has used have a stain-resistant finish? Does she feel it helps keep the fabric clean?

Observe--Look at 10 different spools of cotton thread. Report how many spools are mercerized. If you find any that are not mercerized describe any differences in appearance or strength.

Collect--1. Decide how the collection will be organized (e.g. notebook, cards).
2. Find samples of 4 different methods of dyeing.
3. Find samples of at least 4 different methods of printing.
4. Mount and label each sample.

If results of an experiment are not what you expect, this could be due to finishes already on the fabrics.

Experiment--flame resistance

1. You will need 1 wool sample and 1 cotton or rayon sample, tweezers and matches.
2. Be sure to hold the sample over an empty metal wastebasket. Light each sample one at a time while holding with tweezers.

3. Describe how quickly each sample catches on fire and how quickly each burns or if it goes out.

Experiment--water repellancy

1. You will need 2 samples of cotton fabric.
2. Spray one with Scotchguard following directions on the can.
3. Using an eyedropper put 3 drops of water on each sample.
4. Describe how quickly the water is absorbed on each sample.

Experiment--soil resistance

1. You will need 2 samples of cotton fabric.
2. Spray one with Scotchguard following directions on the can.
3. Soil each sample equally.
4. Wash both samples and describe any difference in ease of cleaning or in results.

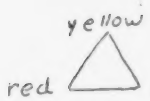
Read--Select, read and take notes on any 2 selections for each. finish. The following is your bibliography.

Anti-Static:

Textile Handbook p. 46
Textiles p. 63

Bonding:

"Bonding a Significant Report on an Important Development in Textiles"
"New Dimensions in Bonding"



Dyeing:

Fiber to Fabric p. 113, pp. 117-124
Textile Handbook pp. 54-56
Textile Topics, "Dyeing Textiles"

Flame Resistance:

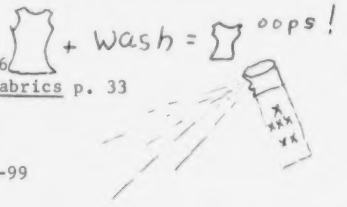
facts about fibers p. 9
Man-Made Fibers p. 7
Textile Handbook pp. 46-47, 92
Textiles for Teens p. 45
Flammable Fabrics Act and Product Safety Commission
Fiber to Fabric pp. 108-109
Textiles p. 209
Wool as an Apparel Fiber pp. 86-90

Mercerization:

Textile Handbook p. 47
Fiber to Fabric p. 94
Textiles pp. 199-200

Permanent Press:
facts about fibers pp. 9-10
Fibers for contemporary fabrics pp. 29-31
textile fibers (brown) p. 52
Textile Handbook p. 50
"Durable Press with Kodel Polyester"
"About Durable Press and Kodel Polyester Fiber"

Sanforize:
Textiles for Teens p. 43
Fiber to Fabric pp. 95-96
Fibers for contemporary Fabrics p. 33
Textiles pp. 192-195



Sizing:
Fiber to Fabric pp. 98-99
Textiles p. 185

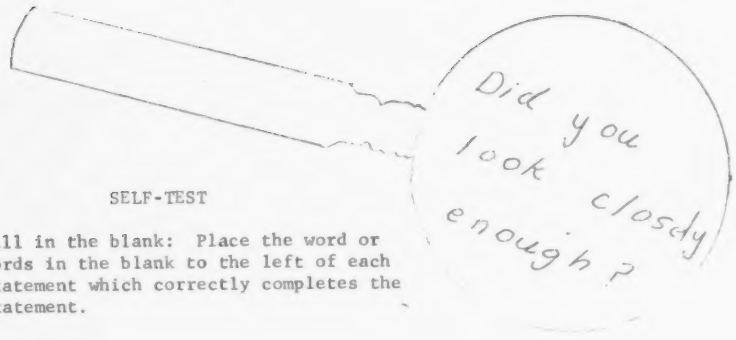
Stain-resistant: (read 1 only)
Fibers for contemporary Fabrics p. 32

Waterproofing:
Fibers for contemporary Fabrics p. 32
Textile Handbook p. 49
Textiles pp. 185, 208

Water Repellant:
Fibers for contemporary Fabrics p. 32
Textile Handbook p. 49
Textiles for Teens pp. 44-45
Fiber to Fabric pp. 106-107
Textiles p. 208
Wool as an Apparel Fiber pp. 80-85

Wrinkle Resistance:
Textile Handbook p. 50
Fiber to Fabric p. 106
Fibers for contemporary Fabrics p. 31
Textiles pp. 188-192

Printing:
Fiber to Fabric pp. 126-134
Textile Handbook pp. 57-58



SELF-TEST

Fill in the blank: Place the word or words in the blank to the left of each statement which correctly completes the statement.

_____1. A finish which is powdery and washes out is _____.

_____2. Rubberizing is an example of a finish that is _____.

_____3. The treatment that rayon blankets and cotton clothing need is _____.

_____4. Fabric of wrinkle-free 100% cotton has a _____ finish.

_____5. A finish that temporarily sheds water is _____.

_____6. A finish which adds body and is fused or glued onto fabric is _____.

_____7. A wrinkle-free finish which is hard to soil, but will hold stains is _____.

_____8. The finish which adds strength and sheen to thread is _____.

_____9. Fabric softener is an example of a _____ finish.

_____10. A finish which is nearly always made of acetate is _____.

Matching: Place the letter of the correct description to the left of the finish it describes.

_____11. waterproof	A. various colors within yarn
_____12. roller printing	B. commercial spray can
_____13. soil resistance	C. color same throughout fabric
_____14. vat dyed	D. adds strength
_____15. fiber dyed	E. color on one side of fabric only
	F. permanently sheds water

Matching: Place the letter of the description that best describes how to care for each finish.

_____16. bonding	A. spray on, wash out in warm, soapy soapy water
_____17. sizing	B. add fabric softener to every other wash
_____18. permanent press	C. can wash in hot water
_____19. sanforize	D. dry clean to prevent separation
_____20. anti-static	E. dry in cool dryer

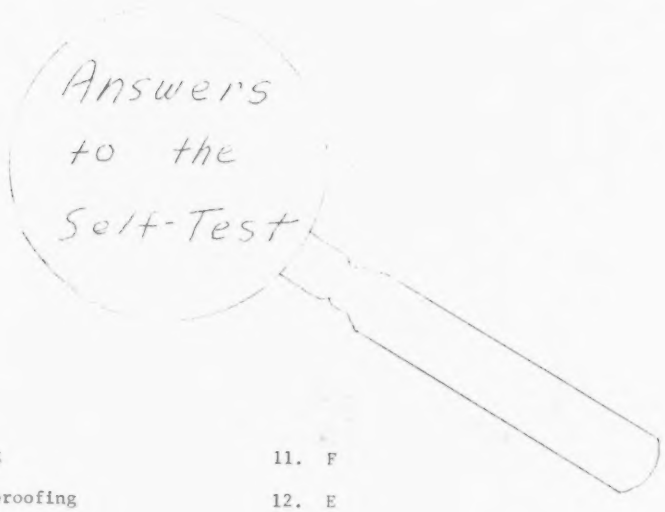
Turn to page 8 [87] for the correct answers. If you incorrectly answered more than 3 questions you need to complete more learning experiences.

If you really looked closely at finishes and liked what you saw perhaps you will enjoy some of these activities. You may even have some ideas of your own.

Consumer Reports--Find any articles on flammability. Summarize each article and make generalizations as to the effectiveness of government regulations.

Field Trip--Go to a dry cleaners. Find out the cost of water repellant treatments and how long they expect the treatment to last. If possible observe equipment used and the process itself.

All tied up--Following directions in "Textile Topics" either tie dye or tie bleach an item of your choice.



1. sizing
2. waterproofing
3. flame resistance
4. permanent press
5. water resistant
6. bonding
7. permanent press
8. mercerization
9. anti-static
10. bonding
11. F
12. E
13. B
14. C
15. A
16. D
17. A
18. E
19. C
20. B

Teacher Activities

Large Group #1

Processes of applying finishes:
- washing in...
- spraying on...
- applying to...

Dyeing and Printing--describe general characteristics

Large Group #2

Test

Small Groups

Present LAPs

Lab - dye fabrics using each method

Prepare bulletin board using various types of printing

Compare results of IS activities. Make generalizations for each finish studied.

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